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PASSAGES FROM A SURGICAL NOTE-BOOK.—No. I.

By C. POWERS, M.D., MORAVIA, N. Y.

[Communicated for the Boston Medical and Surgical Journal.]

MANDANA HIGGINS, aged 24, was shot, purposely, through the body, by a young man named Albert Wood, in a paroxysm of erotic mania, in the presence of Mrs. Clark, the mistress of the house, in which they both lived as farm servants, on the 25th of March, 1857. The girl fell to the floor, and Wood, supposing her to be dead, re-loaded his single-barrelled rifle-pistol—a more murderous arm in its effects than either a “Colt” or a “Derringer”—and shot himself directly through the heart.

Mrs. C. had fled to the neighbors for help immediately after the girl was shot down, and when it arrived Wood was quite dead, though his victim was yet living and conscious. She stated that she distinctly remembered her sensations on being shot—she felt no pain—she only felt a severe blow at the pit of the stomach. She also remembered trying to reach a lounge, and falling near it, after which she lost consciousness for a few minutes, until she was roused by the report of the second pistol, when she found herself singing a hymn. She said that Wood groaned two or three times, but did not speak or struggle.*

I arrived at the house about two hours later. The wounded woman was perfectly calm and collected, but apparently sinking from the shock and internal hæmorrhage. Her extremities were cold, pulse weak, tremulous, and about 90, countenance pale, sunken and ghastly. She felt no pain, but said she was fully aware that there

* This tragic exhibition of human depravity was committed under the impulse of frantic jealousy, though no one would have previously suspected, from the quiet demeanor of the boy (he was but 18 or 19), that he was capable of such a volcanic outburst. Both himself and the girl were of questionable antecedents, and there is in the case a long coil of guilt and crime, involving others, which it is not now necessary to unravel. The affair made considerable noise at the time, and found its way into some of the New York illustrated papers, under the title of the Moravia Tragedy.

was no help for her. On examination, it was found that the ball had entered the sternum, just in the median line, about half an inch above its lower extremity, and, passing obliquely backwards and downwards straight through the body, had emerged close to the spine, on the right side, just on a line with the crest of the ilium, cutting its way out through all the folds of her under garments and dress, and finally lodging in the back of the chair. This was of elm, thoroughly seasoned, and over half an inch thick, and yet the ball, preserving the same downward obliquity of direction—showing that it had not glanced in the least—went, at that angle, more than half way through it. The ball was slightly flattened on one side, and much bruised on another; the first probably from contact with the breast-bone, the latter from the back of the chair. Warmth was applied to the feet and limbs, and hot whiskey—the only liquor in the house—was administered freely; still she continued to sink. Her extremities became icy cold, the pulse ceased to beat at the wrist, her face grew colder, still more pallid and rigid. I told her that she could not probably live more than an hour or two, and asked her if she had any word or message to leave for any one. “None whatever,” she calmly replied, and resolutely turned her face to the wall to die, now and then saying to herself, in a low tone, “how *could* he do it?”

But death, apparently so near, did not then come. After an hour or two, there were feeble evidences of reaction; the arteries again throbbed at the wrist, warmth gradually returned to the extremities and surface, and she became every way more comfortable.

The pistol, when discharged, was so near her, that the wound in her breast was quite large; in fact, more than large enough to admit the finger as far as the sternum. There was but little sensibility about the wound; its edges looked blue and livid, perhaps partially burned by the powder. I removed some ragged spiculæ from the perforated sternum, and a part of one of the hooks of her dress—a piece of plated wire an inch long—which had lodged against its outside. The *patch* of the ball was never found; this, as well as a piece of her dress, cut out by the ball, were unquestionably driven through the bone into the thorax, or possibly accompanied it farther, through the diaphragm into the peritoneal cavity.

As reaction became more completely established, she was kept steadily under the influence of morphia. As the thirst became urgent, ice and ice-water were freely given, though in small quantities at a time, and, after two or three days, rice-water and toast-water. The wound in the back, where the ball made its exit, was very minute. There was a trifling discharge there for a day or two, and although we tried to keep it open for the discharge of pus, it soon permanently closed. The wound in the breast was covered with lint, over which was laid a piece of adhesive plaster. As soon as suppuration was established, this was removed to allow

the matter to escape; at first the discharge was a mixture of blood and water, but it soon became sanious, and, after three or four days, very profuse.

The second day, she vomited water tinged with blood. With the aid of the morphia, she generally obtained two or three hours' sleep each night, though there was always a nightly exacerbation of fever, when there would be increased thirst, restlessness, and, sometimes, delirium.

There was little change for four days, the pulse remaining at about 90. On the fifth, there was a decided alteration for the worse; the pulse went up to 120, the thirst, pain and restlessness increased. On the sixth day, the pulse was 145, respiration hurried, thirst intense, skin hot and dry, countenance Hippocratic, and terribly sunken, tongue dry and dark, severe chills, and increased delirium. The renal secretion, which had all along been scanty and high-colored, was nearly suspended. She vomited about half a pint of sanious fluid, exactly resembling that which was so profusely welling up through the orifice in her breast.

Having every reason to suppose that the intestines, and possibly the stomach, were, or at least might be wounded by the ball, no cathartic of any kind had been given, and even the natural peristaltic action was sought to be arrested by the morphia. But on the fifth day, an enema of warm milk and water was administered, which produced an evacuation of fæces, which, however, were probably in the large intestine at the time of the injury. On the seventh day this was repeated, and the attendants saved the dejection for my inspection. Mixed with the fæcal matter there was bloody fluid, several small pieces of flesh (over an inch long), and numerous shreds, patches and flakes, which appeared to be portions of the stomach and bowels.

The reader can draw his own conclusions as to what *must* have been the state of things along the route traversed by the ball, when the character of the matter vomited and passed by stool is considered. Who would have hesitated to pronounce, as I did, the final close just at hand? But, as if to confound all our vaticinations, just at this moment she began to mend.

On the seventh day, the pulse fell to 130, and the nightly exacerbations were milder. Eighth day—pulse down to 113, skin cool, thirst moderate, sleeps more, looks better every way, and takes, with relish, a little chicken broth. Ninth day—pulse the same, and a spontaneous, perfectly natural evacuation from the bowels. On the night of the tenth day, for the first time since she was wounded, she slept soundly and quietly all night; the pulse, on this and the succeeding day, the same, 113.

The Public, that great outside conclave, that sits in judgment on every case, surgical and medical, and will thus sit to the end of time, now "pronounced" that she would surely recover. It was in vain that I urged the gravity of the injury, and specified the unavoid-

ably resulting lesions—I was met by the unanswerably conclusive and logical inquiry, “Did not Bill Poole live a fortnight with a bullet in his heart, and *almost* get well at that?” The poor girl herself was never deceived for a moment by this deceitful lull, and steadily persisted in saying that she *knew* she had no chance of recovery whatever; and, to do her justice, I never saw any one display more fortitude, or look death more steadily in the face, as he came on from day to day.

Twelfth day.—The most remarkable feature of her case, at present (except the fact that she is alive at all), is the very profuse discharge from the wound in her breast. The whole width and depth of this, above the sternum, is of less capacity than a common thimble, and yet from this wound there is thrown out, each twenty-four hours, more than a half pint of sanious pus. It is preposterous to suppose that this small secreting surface can daily secrete such an amount. It *must* ooze up through the sternum, and against the force of gravity at that. If not walled in at every point by the effusion of fibrin, why does it not spread through the thorax and abdomen? There have been no signs of thoracic or abdominal inflammation, no cough, no tympanitis, or tenderness on pressure.

Thirteenth day.—About midnight, after having been unusually comfortable through the day, she began to sink, and at 3, A.M., the pulse at the wrist stopped suddenly, like the wheels of a clock. She lingered, cold and pulseless, but perfectly conscious of her condition, until 5, P.M.

Autopsy, twenty-two hours after death. On raising the sternum, the pericardial sac was found considerably distended with fluid, and, on making an incision, six or eight ounces escaped. The whole exterior of the heart, and the whole interior surface of the pericardium, presented a most singular appearance, both surfaces being covered with granulations, or ragged papillary projections, knobs and points, varying in size from a bird-shot to half an inch in depth. These growths were exceedingly irregular, though generally acuminate. No smooth surface could be found in any portion of either surface of the pericardial sac. These fibrinous exudations were of course the result of recent pericarditis. There was some hypertrophy of the left ventricle, and traces of fatty degeneration, though, until wounded, she had never complained of cardiac trouble, and during her illness there was no irregularity of pulse, or pain in the cardiac region.

A long gun-shot probe was now passed down the still patent track of the ball, eight or ten inches, and, keeping the probe steadily in the wound, we proceeded, carefully and slowly, to follow it down. This was a work of time and difficulty, as all the parts were *welded* together from inflammatory action, and much altered in character and appearance. For instance, the diaphragm, around the wound, was inflamed, and three fourths of an inch in thickness. The

ball had just missed the stomach; the side of it next the wound was inflamed, both externally and internally, and it contained some two quarts of watery fluid, in which were floating small masses of pus. The ball had passed through the liver, in which the length of its track was two and a half inches; the side of the wound there looked torn and bloody, with a little pus. The omentum around the wound was inflamed and thickened. On separating the small intestines with great care, we could find no place where any of them were wounded, though they, too, in the neighborhood of the track of the ball, were inflamed, thickened, and cemented together. The right kidney was transfixed nearly through its centre, and on cutting it open, it looked rough, mangled and bloody, the wound appearing as though just made—nature not having made the slightest attempt at reparation. The ball passed thence out of the back, just clearing the spine, on its right side.

Is it not extraordinary, that a person could live thirteen and a half days with a wound penetrating the thorax, diaphragm and abdominal cavity, freely communicating with the external air all the while; with a shattered liver and kidney, yet with no pleuritic or peritoneal inflammation, no cough, no tympanitic distension, nor abdominal tenderness?

Another puzzling inquiry here arises—whence the pieces of flesh, and patches of what was apparently mucous membrane, and shreds of intestine, which passed through the bowels; and whence the blood and sanious fluid so often vomited?

No blood or pus could be found in the thoracic or abdominal cavity. Must there not have been internal hæmorrhage, the first few hours, when she was apparently so near death; and if so, what had become of the blood? And what was the immediate cause of death at last? Probably acute pericarditis, yet its most prominent signs were wanting.

Before the *post-mortem* examination, I was very confident that the stomach and bowels must have been cut by the ball. On the whole, it must be confessed that this examination, instead of shedding any light, certainly “radiated darkness” on the whole case.

September, 1860.

RESEARCHES UPON THE ERECTILE ORGANS OF THE FEMALE.

[Translated for the Bos. Med. and Surg. Journal, by WM. READ, M.D.—Continued from p. 178.]

Mechanism for the adaptation of the fimbriated extremity to the ovary.—The general fact, that the ovary, the tube and the uterus are enveloped in a common muscular membrane, is especially important with reference to the connections which the contractile fibres establish between the gland of the ovary and its excretory canal. We

shall see that these connections result chiefly from the double radiation of the utero-ovarian and the ovario-lumbar ligament in the membrane which binds the tube to the ovary. It is easy to comprehend, in a general way, how, by the contraction of the muscular fibres, the tube and the fimbriated extremity especially, towards which they converge, are drawn in contact with the ovary. This is the real mechanism, the only one possible for this physiological act, so important that if it is disturbed or prevented, the great function of reproduction of the species becomes impotent.*

The purely hypothetical explanations by aid of which we have have thought up to the present time to account for this phenomenon, are utterly devoid of foundation. Müller considers them so when he declares that *he is far from knowing the forces which unite to convey the ova, fecundated or not, into the Fallopian tubes.*

Indeed, it is certain that the vascular turgescence produces no peculiar movement in the tube, and that, moreover, as I have pointed out, we do not find in this organ the essential anatomical conditions for producing the special phenomenon of erection.

As to the action of the muscular coat of the tube, to which we have too readily attributed a movement of reptation,† or even a projectile movement of the fimbriated extremity towards the ovary, it would be powerless to bring about such a result.

The longitudinal fibres are evidently the only ones which can change the *situation* of the fimbriated extremity; it is almost unnecessary to remark that their contraction can have no other effect than to diminish the length of the canal, to cause its free extremity, the fimbriated extremity, to approach its fixed end, the uterine orifice, and in consequence remove it from the ovary. For that not to take place, it is necessary that the fimbriated extremity, while the longitudinal fibres are contracted, should already be drawn and fixed to the surface of the ovary. But, a comparative investigation of the less important arrangements peculiar to the different species show, that, under every condition, the muscular apparatus which I have brought into notice, directs and governs

* NOTE BY THE TRANSLATOR.—The following extract (*London Lancet*, Dec. 17, 1859, p. 618, proceedings of the Pathological Society of London) is in verification of the demonstration of M. Rouget:—

“Mr. Spencer Wells presented the pelvis of a woman who had died of tetanus after perineal suture, performed for the relief of prolapsus uteri, with cystocele and rectocele. The symptoms in this case had pointed to injury of the perineal nerves, and increased reflex excitability of the spinal cord, as the cause of the tetanus; and Mr. Wells had been anxious, therefore, to have a minute examination made of the nerves implicated in the operation. Mr. Couper, Demonstrator of Anatomy at the London Hospital, had made the *post-mortem*, and had removed the whole pelvis and afterwards made a careful dissection. . . . This preparation also showed very distinctly Rouget's Utero-Ovarian Muscle, Mr. Couper having the credit of being the first to demonstrate it in this country. It was plainly seen to consist of bundles of muscular fibres, forming a fan-shaped muscle between the folds of the broad ligament, and showing that the uterus, the ovary and the Fallopian tube are enveloped in a common muscular membrane, and that the contraction of the bundles of muscular fibres would draw the ovary and the fimbriated extremity of the Fallopian tube together; and, by enclosing the venous plexuses near the ovary, would complete the erectile system of the female organs of generation, so beautifully delineated by Dr. Savage, and explain very simply the mechanism of ovulation.”

† The movement of reptation, or vermiform movement of the tube, actually exists, but it has no influence, except to advance the progress of the ovum, after that has penetrated into the oviduct.

the adaptation only of the fimbriated extremity to the surface of the ovary, and the passage of the ovum into the orifice of the tube.

In the majority of the species of the mammalia (*ruminants, rodents, carnivora, and insectivora*), the last portion of the tube describes a grand circumvolution which brings the fimbriated extremity back to the outer extremity of the ovary, the ovario-tubal muscular membrane (*mesometrium*, ala of the tube), accommodates itself to this bend of the canal, folds upon itself, and falls like a curtain, the free border of which, parallel to the surface of the ovary, embraces one of the extremities of the fimbriated extremity, more or less intimately fixed to the ovary by its other extremity. The membrane or ligament of the ovary (*mesoarium*), blended at one of its edges with the extremity of the tube (*mesometrium*), seems to wind in an opposite way; the free edges of the two membranes enclose—one the ovary, the other the fimbriated extremity—bring them opposite each other, and circumscribe the orifice of a large cavity or peritoneal pouch, of the ovary.* It is sufficient to see this arrangement to comprehend how the muscular fibres of the two membranes, condensed particularly at the free edge, close this orifice by their contraction, like a button-hole, how the application of the fimbriated extremity to the surface of the ovary results necessarily from the drawing together of the edges of this button-hole; how, in a word, the fimbriated extremity is, not only brought into contact with that extremity of the ovary which is near to it, but can, if necessary, be drawn, be promenaded, over the whole surface of that gland, by the contraction of the fibres of the mesometrium, in reality a *gubernaculum tubæ*, to which come in aid of this simultaneous contraction, the fibres emanating from the ligament of the ovary (*gubernaculum testis muliebris*).

Whilst in the *she goat* the fimbriated extremity is still at a distance from the ovary, and the peritoneal sac largely open, in the rabbit affairs are so arranged that the two membranous folds of the tube and the ovary, in contact at their edges, even in a state of repose, cover the orifice of the ovarian sac which cannot be seen without separating them. Naturally also the fimbriated extremity floats in contact with the ovary without any active intervening force; but this adaptation, purely passive, incomplete and insufficient for the accomplishment of the function, is transformed into a forced occlusion of the peritoneal sac, and an exact application of the fimbriated extremity to the surface of the ovary by the contraction of the parallel muscular cords which border the two membranes.

* This peritoneal pocket of the ovary has been compared, with reason, to the tunica vaginalis of the testicle. The analogy is all the more complete that in the two cases, the muscular membranes form the parietes of these *serous sacs*. I have elsewhere shown (*Comptes-rendus de l'Acad. des Sciences*, May, 1836), that the fibres of the proper muscle of the cord, in man, in the horse, &c., spread themselves out in a net work upon the true tunica vaginalis.

The arrangement is almost similar in the hedgehog. But in another species of rodents, the guinea-pig, in a great number of the carnivora, and especially in the bitch, the edges of the two membranes are not only approximated, but are closed up throughout their whole length, except just at the ovary and the fimbriated extremity, where nothing is left but a straight button-hole, or simple slit even; and still more, this last vestige of the primal arrangement may itself disappear, and the ovary be enclosed with the fimbriated extremity in a *vaginal* capsule, closed on all sides (bear, sea otter, porpoise, &c.) Is the action of the muscular apparatus which I have described useless on this account—are its fibres themselves atrophied? Not the least in the world; their very marked development proves that if the first act of their function, the approximation of the fimbriated extremity and the ovary, is, so to speak, economised, they have still another rôle to fill; the strong bands which embrace the fimbriated extremity and the ovary, keep them firmly applied to each other, whilst the fibres disseminated through the walls of the sac keep that closed on every side, and perhaps from necessity force the ova, which have accidentally fallen into the *vaginal* cavity, to enter into the fimbriated extremity.

The inclusion of the ovary in a peritoneal capsule more or less completely closed is, moreover, nothing more than the result of an accident of evolution, become, in some way or other, normal in certain species. Thus, in the bitch, in the early period which follows her birth, we find no peritoneal capsule of the ovary. Indeed, the ala of the tube falls like a veil above the gland, but by raising and turning over this membrane and the fimbriated extremity which it supports, we clearly discover the ovary perfectly free, and not separated at all from the great cavity of the peritoneum. It is only at a later period that adhesion takes place between the border of the tubal membrane, the contiguous edge of the mesoarium, and the surface itself of the gland; these become separated, enveloped in the folds of the muscular membranes, and the vaginal sac is formed, without anything being changed in the texture, or in the connection of the parts, and consequently without any essential modification of the mechanism of their function taking place.

The arrangement of the Fallopian tube, the fimbriated extremity, and the ovary seem to be, in the human species, as little favorable as possible for the accomplishment of the function of ovulation. There is not, perhaps, among the mammalia, a single animal in which the orifice of the tube is more independent, or the ovary less sheltered by the neighboring membranes, and communicating more freely with the general cavity of the peritoneum. Let the partisans of a *final cause* admire the art with which, the ovary and the orifice of the oviduct being enclosed in the same envelope, the passage of the ovule is protected against every chance of disturbance, in the bitch and in the bear; for here they will have nothing

to admire, unless it be perhaps the more numerous chances of sterility which a spirit of foresight, much appreciated by certain economists, would have reserved for the human species. How frequently, moreover, we find, as a result of local peritoneal inflammations, almost always undiscovered during life, the fimbriated extremity or the ovary itself, retained by morbid adhesions at a distance from each other, or in contact, so that the orifice of the oviduct cannot present itself to encounter the ovule!

In the normal state in the human female, the Fallopian tube, the terminal circumvolution of which, intended to bring the fimbriated extremity back towards the ovary, is hardly indicated, extends its fringed edge freely at a distance on the average of from one half to three quarters of an inch, from the nearest extremity of the ovary. The length of the peritoneal fold (free border of the *mesometrium*), which stretches from one to the other, allows the fimbriated extremity to reach the farthest portions of the ovary. This property compensates for the small size of the fimbriated extremity, which, relatively, less considerable than in animals, equals scarcely one third of the surface of the gland.

However, no previous arrangement prepares the coaptation of the parts in any way. Every thing is subordinate to the action of the muscular apparatus, which directs the fimbriated extremity towards the ovary, draws it into contact, and according to the situation of the point when a prominent vesicle is ready to rupture, forces, if necessary, the tube to bend, and twist upon itself even, and carry its orifice as far as the uterine extremity of the ovary. What other apparent complication of these different acts there may be, which evidently necessitate the intervention of a special agent, the arrangement of the muscular apparatus which I have described, enables us to comprehend the mechanism. The direction of the two kinds of muscular fibres which, having their fixed points at the lumbar region and at the uterus, embrace the whole length of the tube and the fimbriated extremity, clearly explain the movements executed by these organs, to carry them before and behind, and the possibility of the inflection of the tube upon itself even, and the application of the fimbriated extremity to the surface of the ovary. The whole, in a word, is reduced to the mechanism by which the opening of a bag closes itself, the borders of which wrinkle, and come near together, when we exercise traction upon the strings which, attached to it, stretch all around its edges. It is thus that the fundamental act of ovulation, the passage of the ovum from the ovary into the oviduct, is accomplished, wherever the two organs have not permanent continuity, by aid of the ovario-tubal muscular apparatus.

But this rôle, so important and so general, is not the only one which this apparatus fulfils in the human species. An accident of organization which has become normal, the erectile development of certain vascular formations enclosed in the muscular metro-ovarian

membrane, involves such consequences that an epiphenomenon of ovulation raises itself almost to the rank of a new function. This is *menstruation*.

[To be continued.]

INVESTIGATION OF TRICHINA SPIRALIS.

BY R. LEUCKART.

PROFESSOR LEUCKART has communicated the following results of his investigation of *trichina spiralis* to the Royal Academy of Sciences of Göttingen:—

1. *Trichina spiralis* is the young state of a hitherto unknown, small, nematode worm (of 1.5–2.8 mill. in length) for which the generic name of *trichina* must be retained.

2. It inhabits the intestinal canal of numerous warm-blooded animals, not only mammalia (dogs, cats, pigs, sheep, rabbits, and mice; also, undoubtedly, man), but also birds (the common fowl), and, indeed, always in large quantity.

3. The intestinal *trichina* attains its full sexual maturity as early as two days after its immigration.

4. The eggs of the female are developed in the vagina into minute filaria-like embryos, which are extruded without egg-shells (from the sixth day onwards).

5. The new-born young immediately set about their migration. They penetrate the wall of the intestine, and pass through the cavity of the abdomen directly into the muscular envelope of their host.

6. The course upon which they advance is indicated beforehand by the intermuscular masses of cellular tissue.

7. The majority of the migrating embryos remain in the groups of muscles immediately enclosing the cavity of the body (the abdominal and thoracic cavities), especially the smaller ones, and those containing most cellular tissue.

8. The embryos penetrate into the interior of the individual muscular fasciculi, and here attain, within fourteen days, the size and organization of the well-known *trichina spiralis*.

9. The infected muscular fasciculus loses its previous structure immediately after the penetration, the fibrillæ becoming broken up into a finely granular substance, and the muscular corpuscles acquiring the form of oval nucleated cells.

10. Up to the full development of the *trichina spiralis*, the infected muscular fasciculus still retains its original tubular form; whilst subsequently its sarcolemma thickens and it becomes gradually shrivelled from the extremities.

11. The spot occupied by the parasite persists, in the form of a spindle-shaped enlargement, in which the well-known lemon-shaped

or globular calcareous shell is afterwards deposited (although only after a longer time).

12. The migration and development of the embryos take place also after the transference of pregnant trichinæ into the intestine of another (suitable) host.

13. The further development of the trichina spiralis into the sexually mature animal is quite independent of the formation of this calcareous shell, and takes place as soon as the young state is fully developed.

14. The male and female individuals are distinguishable even in the young state (trichina spiralis).

15. The immigration of the brood of trichina in large quantities causes very serious symptoms; namely, peritonitis, in consequence of the penetration of the wall of the intestine by the embryos; and lameness, in consequence of the destruction of the infected muscular fasciculi.

16. Feeding upon flesh containing trichinæ is also followed by more or less dangerous symptoms, according to the quantity of the imported parasites; namely: an enteritis, often causing death, accompanied by bloody (*crupöser*) exudations, which are sometimes thrown down in ragged clots and evacuated (rabbit), and sometimes converted into psorospermia (dog), or pus-corpuscles (cat, mouse).—*Göttinger Nachrichten*, April 30, 1860, p. 135. *The Annals and Magazine of Natural History*, June, 1860.

BERLIN, May 16, 1860.

The microscopical preparation which I have the pleasure to forward to you, has not only a serious pathological importance, but, I may venture to say, with regard to the discovery of the new and alarming disease it tends to illustrate, is invested with a truly historical interest. It is a minute portion of the pectoral muscle of a rabbit, which died under symptoms of progressive muscular paralysis, after being fed with the flesh of another animal of the same species, which died under similar symptoms from the same cause; for it likewise had been fed with a piece of muscle taken from a rabbit which had perished from the immigration of myriads of trichinæ into its muscular system, about a month after a piece of human muscle, in which a number of these parasites were imbedded, had been introduced into its stomach. The piece of human muscle, however, was taken from the body of the first patient whose death was ascertained to have been due to trichinatus disease.

From the remarks made by Professor Virchow in the opening lecture of his most excellent course of pathological demonstrations for the present session, and from a series of papers by that eminent pathologist, and by Professor Zenker, of Dresden, I have compiled the following sketch, which will serve to illustrate for

the information of your readers the salient points of this most important subject.

Trichina spiralis, known formerly only in a capsulated state, was considered more as a zoölogical curiosity than as a subject of pathological interest. No symptoms were known to betray its presence; and it was, perhaps, more frequently discovered in the dissecting room of the students than at the *post mortems* conducted by the pathologist. Since its discovery by Owen, numerous conjectures have been formed relative to the nature, origin and propagation of this singular parasite. Herbst believed it to be identical with *filaria*, Meissner and Davaine regarded it as a larva of *trichosoma*, and Küchenmeister considered it to represent an undeveloped, juvenile stage of *tricocephalus dispar*. The latter idea seemed to be confirmed by some experiments of Leuckart, who found trichinæ in the muscles of an animal fed with *tricocephali*; these experiments could, however, not be considered as conclusive, as the examination of the muscles before the experiment was commenced had been neglected. Herbst was the first to institute feeding experiments with trichinatus muscles. He found trichinæ in the muscles of animals experimented upon; but the connective links between the parasites introduced into the stomach and those found in the muscles being deficient, no perfect light was thrown on the subject by these observations. The first experiments of Virchow, instituted last summer, tended materially to supply these deficiencies. In the intestinal canal of an animal fed with trichinatus muscle, he found the villi crowded with psorospermia; and free in the intestinal mucus numerous thread-like worms, of the form of trichinæ, of both sexes, the sexual utericle of the male filled with sperm-cells, that of the female densely stocked with ovules. Trichinæ were thus proved to be bi-sexual. Their non-identity with *tricocephali* was also placed beyond doubt. The numerous points still requiring elucidation were being reserved for further inquiry, when in January of the present year, the following case was observed by Prof. Zenker, of Dresden, which, in conjunction with the experiments to which it gave impetus, and for which it supplied the material, not only served to bring about a final settlement of the zoölogical part of the question, but disclosed the startling and alarming pathological fact that *trichina spiralis*, hitherto considered to be an innocent parasite, is in reality the most terrible and dangerous of its kind—that it can actually kill a healthy adult in a few weeks, under the most distressing symptoms:

On January 12, 1860, a robust maid-servant, twenty-four years of age, was admitted into the Dresden Hospital. She had been indisposed since Christmas, and confined to bed since New Year's day; complaining of depression, lassitude, sleeplessness, loss of appetite, heat, and thirst. These symptoms persisted on her ad-

mission; there was considerable pyrexia; the abdomen painful and tympanitic; and although neither splenic tumor nor roseola were present, the case was put down as one of typhoid fever. A remarkable affection of the whole muscular system now rapidly supervened, consisting in extreme painfulness of the extremities, with contractions of knee- and elbow-joints, and œdematous swelling, particularly of the legs. The pain was so severe that the patient was constantly moaning. Pneumonic symptoms supervened, and death took place on January 27th, preceded for twenty-four hours by an apathetic condition. The *post-mortem* examination showed in the internal organs merely an atelectatic condition of the left lung, with numerous small lobular infiltrations, bronchitis and hyperæmia of the mucous lining of the ileum. The muscles, however, which showed a grayish-red color and a slightly freckled appearance, were found, on a microscopic examination, to harbor vast numbers of non-capsulated trichinæ. The parasites were living, some coiled in spirals, others with extended bodies; and all (as Prof. Virchow was the first to show, in a fragment of muscle which was forwarded to him for examination) living within the sarcolemma of the primitive fibrils. They showed various stages of development; they were diffused over all the striated muscles of the body, with the exception of the heart, and that in such vast numbers, that under a small magnifying power as many as twenty were in the field of vision simultaneously. The muscular substance was otherwise fragile, homogeneous, non-striated, and showed numerous transverse fissures. The intestinal mucus was found to be swarming with mature trichinæ of both sexes; and the remarkable fact was elucidated, that female trichinæ are viviparous; the central portion of the bodies being observed to be full of well-developed embryos.

Inquiry being directed to the probable source of the trichinæ infection, it was ascertained that on December 21, four days before the patient was taken ill, two pigs and an ox had been slaughtered in the establishment of her master. Some smoked ham and sausage, prepared from the meat of one of the pigs, were fortunately obtained, and, on examination, proved to be full of trichinæ. The parasites had a shrunken appearance; otherwise unchanged; resumed a normal appearance on the addition of water, but showed no signs of vitality. It is particularly worthy of remark, that to the naked eye the ham appeared perfectly healthy. It is very likely that the deceased had partaken of some of the raw meat. The butcher of the establishment (butchers notoriously indulge in raw meat) had also been taken seriously ill a short time afterwards, and was confined to his bed for three weeks with severe muscular pains, his whole body being semi-paralytic, &c. The complaint was ascribed to rheumatism at the time, but Prof. Zenker correctly surmises that an immigration of trichinæ, not sufficiently extensive to prove fatal, may have been the cause

of the attack; and that capsulated trichinæ would very likely be discoverable in his muscle. Professor Virchow immediately commenced a series of feeding experiments with the pieces of human muscle forwarded to him by Prof. Zenker.

The following is a brief statement of the results, as published in the last number of *Virchow's Archiv.* :

Rabbits fed with trichinæ die in about a month under symptoms of general muscular paralysis.

The trichinæ, which, as long as they reside in the muscle, have no perfect sexual organs, become perfectly developed in the ileum. They are found free in the duodenum, about six hours after a piece of trichinatus muscle has been introduced into the stomach. In about a month they attain a length of four lines, and during that period not only mature eggs and sperm-cells, but numerous embryos, resembling small filariæ, are developed, which leave the maternal body through the anterior sexual orifice, are found in the mesenteric glands, and rapidly invade the whole muscular system, dwelling within the sarcolemma, and feeding upon the contractile substance of the muscular fibres. They are found in all the striated muscles of the body, with the exception of the heart (Zenker states that he found a few in the heart of a rabbit fed with trichinæ); liver, lungs, kidneys, &c., are free. In case the immigration is not sufficiently extensive to cause a fatal result, the trichinæ become enclosed in a capsule, which consists originally merely in a thickening of the sarcolemma, and this is the only condition in which they were formerly known. The trichina now shows the highest development it is able to attain within the muscle, into which it originally penetrated in an embryonic stage. It still retains its vitality, and quietly waits for an opportunity to find its way back into the intestinal canal, where, as Virchow's observations have shown, the two sexes attain the stage of puberty, and a wonderful productiveness, so pernicious to the individual who is unfortunate enough to harbor such terrible guests, is displayed.

The same applies to the non-capsulated trichinæ, which the enclosed preparations will make you acquainted with. The flesh of the rabbit had, to the naked eye, a perfectly normal appearance. The trichinæ are not near as numerous in this case as they were on former occasions. The intestinal mucus contained mature trichinæ of both sexes.

Professor Zenker made a feeding experiment with a piece of the ham. No trichinæ were found in the rabbit a week after. These experiments will, no doubt, be repeated, as the time elapsed was far too short to enable a definite conclusion to be formed.—*Medical Times and Gazette.*

Bibliographical Notices.

On the Diseases, Injuries and Malformations of the Rectum and Anus, with Remarks on Habitual Constipation. By T. J. ASHTON, Surgeon to the Blenheim Dispensary, &c. &c. From the Third and Enlarged English Edition. With Illustrations. Philadelphia: Blanchard & Lea. 8vo. Pp. 292. 1860.

MR. ASHTON's work, since its first publication, has enjoyed a high reputation, and we are glad that it is now given to the American profession in so good a dress, and that, too, without being saddled by any jump-up-behinder with his notes and prolixities as editor. The scope of the work embraces all surgical affections of the anus, together with irritation and itching, as well as inflammation and excoriation of that vent. It goes up the rectum as far as cancer does, and takes a sweep around it extensive enough to include abscesses of that region. The last chapter is devoted to Habitual Constipation, which, furnishing the cause of so many other affections requiring surgical interference, comes very properly within the limits and purposes of the book. The wood-cut illustrations are sufficiently numerous for full elucidation of the subject, and are both original and well executed. As regards the importance of the subjects treated of in this work, the author well remarks that "in the whole range of surgical pathology, no class of diseases among civilized communities is so prevalent, causes more suffering, or induces so many varied and distressing sympathetic affections as those of the Rectum." To this we doubt not that every one who has a "*mens conscia recti*," and has arrived at that age of "fool or physician"—forty—will heartily respond.

In looking through the work, we find very few omissions to note, and but little to comment on, as differing from our own views on the subject. The style and method of the book commend themselves to us greatly—being clear and simple—giving nothing more than is necessary for a full exposition of the subject.

In speaking of enema syringes, Mr. Ashton urges, with great propriety, that the nozzle should be of some elastic substance, and not of ivory or metal, as is now the case. This is a necessity that has forced itself upon our attention, and we have made great efforts, though hitherto in vain, to meet it. The French make a nozzle in the same way they do bougies and catheters—of some woven foundation covered with boiled oil. The defect of these is, that they are too slender and apt to bend when meeting with any resistance, and they are affected, softened and dissolved by oil and many other things used as injections. They do admirably well, however, as long as they last, and are the only things that women should use in the later stages of pregnancy. We have tried in vain to have some made like these of vulcanized India-rubber, but the monopolists of that material are too well satisfied with their existing profits, and have not enough of bowels of compassion, if they have any others, to embark in a new article. One great defect in the syringes now used is the size and shape of the nozzles. They are too small and too pointed. The consequence is, they often cause intense pain by catching in the folds of the rectum, particularly when used in dysentery. They are also, as a general thing, too short, and do not carry the injection high enough, but deposit it in the most irritable part of the rectum, and below the *scybæ* which it is intend-

ed to remove; the result is, that it is immediately ejected, not remaining long enough to effect the object for which it was introduced. The nozzle of an enema syringe, for an adult, should be capable of being introduced at least three inches. Its diameter should be a half inch, and the extremity should have a regular curve of a half sphere. The opening of the tube, also, should be well rounded, so as not to present any sharp edge to the delicate mucous membrane liable to be forced against it by spasm. Were these modifications made, we are confident that enemas would serve their purpose much more efficiently than they do now, and could be taken with half the inconvenience and annoyance that they are. With regard to the kind of forcing apparatus to be used to throw in the liquid, we agree with Mr. Ashton, that the simplest is the best. For most purposes nothing is better than the common India-rubber bottle, with a nozzle as described above. Where graduated and small quantities of fluid are to be used, as in anodyne and such like enemas, the cylinder and piston syringe has to be used, as with this alone can the quantity be gauged. A modification of the bottle that we have found immensely useful, is to have a tube of India-rubber a foot long, to one end of which is attached the nozzle—to the other, an ivory or metal socket. The bottle is provided with a mouth-piece that fits into the socket. The advantage of this arrangement is, that in cases where the patient is helpless from apoplexy or unwieldy form, ascites or pregnancy, the nozzle can be introduced without a change of position. We have given a large space to this portion of the subject, but we consider it a very important one. Enemas are highly useful remedies, and would be resorted to much oftener than they are, were their efficiency developed, the convenience of giving them increased, and the drawbacks to their use lessened as suggested above.

The first chapter is devoted to irritation and itching of the anus—"a very common affection," but one of the most distressing that we have had to deal with. The author points out derangement of the alimentary canal from ingesta of a highly-seasoned character, and of difficult digestion, but we have seen it proceed from the use of very simple articles of food, and such as were highly digestible and very beneficial to the patient in other respects. The chief proposition, however, our own experience teaches is true: viz., that the irritation and itching is caused, not by an external affection as a general thing, but by the irritative quality of the mucus secreted or collected just within the anus. In one of our patients it is always caused by drinking a single glass of malt liquor; in another, any other stimulating condiment than black or red pepper will bring it on. Discrimination should be made between those cases where it is a symptom of irritation within the anus, and those where it is caused directly by eczema. In the latter class it often comes on so suddenly and upon such little provocation, that the real state of the part is not suspected. It is evident that the treatment of each class should be different.

Chap. III. treats of excrescences around the anus, and in the treatment of these, we must note the author's dependence upon simple and gentle means. Indeed, these seem to be a characteristic of his treatment—all through the book.

The chapter on fissure of the anus, is an important and valuable one. As in other affections, the author begins in this with mild remedies before proceeding to the knife; and when this is used, he advises

merely incising the most superficial fibres of the muscle, remarking that it is surprising to find how very slight the incision need be.

Hæmorrhoidal affections are treated of at length—in fact, at too great length to permit us even to give an abstract of the chapter. The first thing in it, however, that strikes us, is that the word is spelled with an *e* instead of the diphthong *æ*. Our classical taste objects, but common sense accepts this as an improvement. After a very complete and comprehensive classification of these affections, and an admirable dissertation upon the cause of them, many cases are presented illustrative of the treatment. In this the author's rule still prevails—never to use a pile-driver if a common sledge will serve. The chapter on fistula is equally full and complete, and we regret we cannot give a summary of it. The extracts from Dionis about Louis XIV.'s fistula, contain a good lesson if people would only learn by it, but they will not.

Habitual constipation is the important subject of the twentieth and concluding chapter of the work. The effects of this affection are fully and fairly set forth, and as long and varied as the array is, no one of experience will say it is at all exaggerated. To one who has in himself realized many or any of these effects, that line of Sternhold and Hopkins's Psalmody—

"Blessed is the man whose bowels move,"

must appeal as strongly even as any of those that show him his latter end.

We again allude to the principles inculcated throughout the book, that in the treatment of the affections of the rectum, great patience, forbearance and perseverance are necessary, unless the practitioner, eschewing these and his patient's interest, resorts at once to extremes. And the good qualities just mentioned are not only necessary upon his part, but upon that of his patient. There are many who would rather have a knife stuck into them and be killed or cured within a week, than take a month to be cured with applications, enemas, &c. We had an instance of this within six months past, which will indicate what a physician has to expect. Two young gentlemen applied to us at the same time with prolapsus of the rectum. Both had become affected under the same circumstances—the one on the pampas of Buenos Ayres, the other on the prairies of the West. They were put upon the same treatment—poultices of rhatany and washes of tannin. Both did well. One, however, was impatient, and we lost him as a patient. The other got well, and so readily, that he thought very little had been the matter; so that we gained no reputation in the one case because the remedies were so simple—in the other, we lost it because we did not make a display of unnecessary knives and ligatures.

W. E. C.

SPECIALTIES OF THE PRESENT DAY NO NOVELTY.—The system of special practice, which is becoming so prevalent at the present time, existed amongst the ancient Egyptians, for Herodotus speaks of their having doctors for almost every part of the body, of which the eye and other organs are particularly mentioned. Our specialism would seem, then, to be merely a revival of an ancient though not enlightened practice.—*London Lancet*.

 THE BOSTON MEDICAL AND SURGICAL JOURNAL.

 BOSTON: THURSDAY, OCTOBER 4, 1860.

THE VALUE OF A DIPLOMA.—It will be seen, by the following extract from the *London Lancet* for September 1st, that the recklessness with which legislatures grant the power of conferring medical degrees, and the abuse of that power by some colleges, have at last been followed by results, which any fair-minded man could have foreseen from the outset.

British physicians have secured the passage of laws which will tend to elevate and purify the profession in that country. They have been called upon, however, to guard against invasion from this side of the water, and it is well that they should do so. Dr. Clarke, in his Valedictory Address before the medical graduates of Harvard University, in March last, says:—

“I have already intimated, that John Smith, or John Brown, or any other equally eminent man, may sell or give a diploma, and commit no legal offence. In fact, the country swarms with schools, colleges, and institutions of every name and grade, that manufacture degrees by the wholesale, and grant them for the asking. This may be an unwelcome statement, but it is nevertheless true. You may as well look the fact in the face, for you must accept it. Throughout the length and breadth of our land, and not only in large cities, the great centres of population and business, of education and science, but in small villages, and on mountain-tops, and in prairie wildernesses, there are schools of all sorts—Regular, I am sorry to say, as well as Irregular, Botanic, Homœopathic, Mesmeric, Eclectic, Spiritual, and I know not of what other names—that yearly bestow thousands of medical diplomas, upon as many grateful recipients. Mark you, I do not say that all these diplomas, so lavishly given away, are equally valuable; I only say that a diploma, without regard to its intrinsic merits, can be as easily got as sheepskin. It is no more difficult to get merely the title of Dr. than of Captain; and as many obtain the one as the other, and with as good a right.”

The *Lancet* is, therefore, perfectly justified in using the following language:—

“The difficulties which the Medical Council have encountered in resisting the claims of many uneducated and unintelligent persons holding American diplomas in Medicine and Surgery, have evoked the expression of sympathy and shame from the more respectable section of the medical profession across the Atlantic. They avow frankly that such diplomas are, in a large number of cases, wholly destitute of value. They afford no indication either of intelligence, study, skill, or good conduct. The graduate of an American chartered medical college, or the licentiate of a county or state medical society, may be an accomplished gentleman, or he may be an ignorant quack-salver, destitute of any claim to that title. It is right that this should be widely known, and that we should reflect upon the authentic avowal of a respected American journalist. An American medical contemporary states that the ease with which charters are now obtained from State Legislatures, for every non-descript association of men, whether for proper or improper purposes, has effectually broken down all safeguards to respectability, and thrown the field of medicine widely open to every species of adventurer. Charters are granted by State Legislatures to any and every body of men, for any and every conceivable purpose, without discretion or reserve. At nearly every session a batch of medical institutions are chartered, embracing every shade of quackery; and these, equally with the respectable and legitimate schools of medi-

cine, are entitled to confer the degree of M.D., and to represent themselves abroad as universities. It is difficult to imagine a more deplorable state of confusion than such reckless State patronage of ignorance and quackery must produce. Already it threatens to disorganize the educational system of the profession in America; for adventurers are thus freely enabled to purchase that academic status which only education can confer in other countries. The inevitable result must be, that since we have no means of distinguishing here, amongst the multitude of American colleges, those which apply the necessary tests to their members from those which admit the most unworthy persons, American diplomas will fall into discredit, and will be regarded as of no value. The remedy which it is proposed to apply is of a local character; and the American Medical Association taking cognizance of this state of things, it may result that the test of respectability which degrees fail to afford will be furnished by admission to that and other associated societies. It is obvious, however, that this voluntary test will have only a partial and local value. Meantime, it would appear that even the most respectable colleges are not quite free from taint. A protest has been forwarded to us, emanating from the Newark Medical Association, N. J., in reference to a diploma granted by the New York Medical College, which has always held a high place amongst the transatlantic educational institutions. From the protest and resolutions drawn up by this Association and assented to by others, it appears that the person to whom it was granted was a man who had for years painted and peddled window-shades, and subsequently became a dealer in quack pills and salve; that he was a grossly ignorant person; and "his examination, both by the faculty and the censors, must have been conducted in the most unjustifiably careless manner;" all which is respectfully submitted to the American Medical Association, with sundry suggestions "to remove the reproach cast upon the profession by the conferring of the diploma upon so unworthy a person, and prevent a repetition of similar grievances in all future time." The New York Medical College has refused to revoke the degree. The Medical Association is called upon to enforce its revocation, or to exclude the college from representation at its meetings. This disposition to invoke the influence of the Medical Association as a tribunal of appeal of the highest grade has now become a remarkable feature in the politics of American Medicine. It springs, undoubtedly, from the worthlessness and inefficiency of a large number of the chartered medical colleges, and is a strong practical comment upon the injurious effect of that reckless distribution of charters, of which the Medical Council is bound to take careful note in the interests of British Medicine."

MESSRS. EDITORS.—I saw in the JOURNAL of the 20th, a notice of a pair of large twins, weighing 17 lbs. and 5 ounces. This note is merely to say that we beat that easily, up here in New Hampshire. Last Sunday night (Sept. 23d), I safely delivered Mrs. M. of a boy weighing 8 3-4 lbs. and a girl weighing 10 lbs., making 18 3-4 lbs. of babies, all doing well. As in the case of your correspondent, both presented the vertex to the left acetabulum, which is very unusual in twin cases.

Yours truly,

GEO. H. HUBBARD.

Manchester, N. H., Sept. 27th, 1860.

HEBRA'S ATLAS OF SKIN DISEASES.—We see, by the *Lancet*, that the Council of the New Sydenham Society have finally decided on the issue of an Atlas of Illustrations of Skin Diseases, to be selected chiefly from those published by Hebra of Vienna. This will be an invaluable addition to the publications of that Society.

HUNTER MEMORIAL SUBSCRIPTION.—September 26th, 1860. Received from Dr. Bonney, for eleven subscribers from Hampshire County, \$11.00. Total amount received to date, from Massachusetts, exclusive of Essex North, Bristol North, Berkshire and Hampden Counties, from which no returns have been received, \$253.00.

SMOKING AND ITS EFFECTS.—The pupils of the Polytechnic School in Paris, have recently furnished some curious statistics bearing on tobacco. Dividing the

young gentlemen of that college into groups, the smokers and the non-smokers, it is shown that the smokers have proved themselves, in the various competitive examinations, far inferior to the others. Not only in the examinations on entering the school are the smokers in a lower rank, but in the various ordeals they have to pass through in a year, the average rank of the smokers had constantly fallen, and not inconsiderably, while the men that did not smoke enjoyed a cerebral atmosphere of the clearest kind. It would be interesting to pursue this kind of statistical inquiry in our public schools and universities. Perhaps smoking is, in many instances, not the cause, but the effect or indication of intellectual mediocrity. Is there any connection between smoke and German metaphysics?—*London Lancet*.

THE amount of rain which has fallen in Kansas City since the first of January, 1860, is 6.60 inches, a smaller amount than has fallen here, in the same length of time, in any year, since 1854, when there was absolutely no rain from June until October.—*Kansas City Medical and Surgical Review*, Sept.

DEATH OF PROF. HARRIS.—Prof. Chapin A. Harris, founder of the American Dental College, author of the *Dental Dictionary*, *American Journal of Dental Science*, and other standard professional works, died at Baltimore, Sept. 29th, at the age of 50 years.

TEMPERATURE OF THE ARTESIAN WELL AT COLUMBUS, O.—A few days since, a Walferdin's registering thermometer, completely enclosed in glass and iron tubes, containing water, was sunk by Professor Wormley to a depth of 2,575 feet, where it was allowed to remain for 25 hours; it was then lowered to the bottom of the well (2,575 feet), and there remained 40 minutes. Upon withdrawing the thermometer, it was found to have registered 88 deg. Fahrenheit, which may be considered the temperature of the well at that depth.—*Columbus Review*.

DR. H. G. DUERSON, of River View, Ky., reports, in the *Louisville Monthly Medical News*, three cases of diphtheria which have recently occurred in that place, one of which proved fatal after a few days' illness. Dr. D. rejects the idea of contagion in the propagation of this disease.

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, OCTOBER 4th, 1860.

DEATHS.

	Males.	Females	Total.
Deaths during the week, ...	52	31	83
Average Mortality of the corresponding weeks of the ten years, 1850-1860,	48.7	42.6	91.3
Average corrected to increased population, ...	..	..	101.8
Deaths of persons above 90, ...	..	..	..

Mortality from Prevailing Diseases.

Phthisis.	Chol. Infan.	Scar. Fev.	Pneumonia.	Measles.	Smallpox.	Dysentery.	Typhoid Fever.
20	7	3	2	0	0	1	1

METEOROLOGY.

From Observations taken at the Observatory of Harvard College.

Mean height of Barometer, ...	30.090	Highest point of Thermometer, ...	75°
Highest point of Barometer, ...	30.368	Lowest point of Thermometer, ...	38°
Lowest point of Barometer, ...	29.650	General direction of Wind, ...	Westerly.
Mean Temperature, ...	56°.0	Whole am't of Rain in the week	0.703 in.

Deaths in Boston for the week ending Saturday noon, September 29th, 83. Males, 52—Females, 31.—Accident, 9—apoplexy, 2—abscess (of the brain), 1—disease of the bowels, 1—inflammation of the bowels, 1—congestion of the brain, 1—inflammation of the brain, 1—cancer (of the breast), 1—cholera infantum, 7—consumption, 20—convulsions, 1—croup, 2—cyanosis, 2—debility, 4—diarrhoea, 5—puerperal disease, 1—dropsy of the brain, 4—dysentery, 1—scarlet fever, 3—typhoid fever, 2—gastritis, 1—intemperance, 1—inflammation of the lungs, 2—marasmus, 1—paralysis, 3—disease of the rectum, 1—suffocated, 1—varicocele, 1—unknown, 3—whooping cough, 1.

Under 5 years, 39—between 5 and 20 years, 4—between 20 and 40 years, 21—between 40 and 60 years, 10—above 60 years, 9. Born in the United States, 52—Ireland, 23—other places, 8.